

Application No. 09/265,070
Amendment dated December 14, 2005
Reply to Office Action of September 29, 2005

Docket No. 1232-4519

Amendments to the Claims:

Claims 1-21, 26, 31-35, 40, 45-49, 54 and 59-71 are currently pending. Claims 1-16 and 60-68 are withdrawn from consideration. Among the remaining claims, claims 17, 31 and 45 are independent.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (WITHDRAWN): An image processing method for recording a plurality of sensed images on a recording medium, and playing back and displaying the images, comprising: the image sensing step of sensing an image; the recording/playback step of recording and playing back the image sensed in the image sensing step; and the display step of playing back and displaying an image sensed at least before a current image, wherein the display step comprises a plurality of display layout modes for displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image with partial boundary regions thereof overlapping each other.

2 (WITHDRAWN): The method according to claim 1, wherein the image is a still image and/or a moving image.

3 (WITHDRAWN): The method according to claim 1, wherein the plurality of display layout modes of the display step include a first display layout mode in which the images are laid out in two directions, and a second display layout mode in which the images are laid out in one direction.

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4 (WITHDRAWN): The method according to claim 3, wherein in the second display layout mode, the images are laid out horizontally and/or vertically.

5 (WITHDRAWN): An image processing apparatus for recording a plurality of sensed images on a recording medium, and playing back and displaying the images, comprising: image sensing means for sensing an image; recording/playback means for recording and playing back the image sensed by said image sensing means; and display means for playing back and displaying an image sensed at least before a current image, wherein said display means comprises a plurality of display layout modes for displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image with partial boundary regions thereof overlapping each other.

6 (WITHDRAWN): The apparatus according to claim 5, wherein the image is a still image and/or a moving image.

7 (WITHDRAWN): The apparatus according to claim 5, wherein the plurality of display layout modes of said display means include a first display layout mode in which the images are laid out in two directions, and a second display layout mode in which the images are laid out in one direction.

8 (WITHDRAWN): The apparatus according to claim 7, wherein in the second display layout mode, the images are laid out horizontally and/or vertically.

9 (WITHDRAWN): The method according to claim 1, further comprising a function of reversing the layout direction in the one direction.

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10 (WITHDRAWN): The apparatus according to claim 5, further comprising a function of reversing the layout direction in the one direction.

11 (WITHDRAWN): The method according to claim 1, wherein the display step comprises a display layout mode for laying out and displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image in two directions with partial boundary regions thereof overlapping each other, and includes the selection step of selecting an arbitrary one of display regions laid out in the display layout mode.

12 (WITHDRAWN): The apparatus according to claim 5, wherein said display means comprises a display layout mode for laying out and displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image in two directions with partial boundary regions thereof overlapping each other, and includes selection means for selecting an arbitrary one of display regions laid out in the display layout mode.

13 (WITHDRAWN): A storage medium which stores a control program for controlling an image processing apparatus for recording a plurality of sensed images on a recording medium, and playing back and displaying the images, said control program having control modules of the steps of: sensing an image; recording and playing back the sensed image; playing back and displaying an image sensed at least before a current image; and controlling to execute a plurality of display layout modes for displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image with partial boundary regions thereof overlapping each other.

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14 (WITHDRAWN): The medium according to claim 13, wherein the image is a still image and/or a moving image.

15 (WITHDRAWN): The medium according to claim 13, wherein said program further has a control module of the step of controlling to execute a function of reversing the layout direction in the one direction.

16 (WITHDRAWN): The medium according to claim 13, wherein said control program further has a control module of the step of controlling to select an arbitrary one of display regions laid out in a display layout mode for laying out and displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image in two directions with partial boundary regions thereof overlapping each other.

17 (CURRENTLY AMENDED): An image processing apparatus having a function of storing a plurality of sensed still images or moving images in storage means, comprising:

an image sensing unit having an image sensing lens which can change an optical system condition while a user takes a plurality of consecutive images using said image sensing means unit;

a storage unit configured to store the plurality of consecutive images sensed by said image sensing means unit by associating them with each other;

an optical system condition change instruction unit configured to output a signal indicating that for changing the optical system condition of said image sensing lens upon detecting an indication that said image sensing lens is operated by a user;

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a selecting unit configured to make the user selects whether or not to continue an image sensing operation while the user takes the plurality of consecutive images when said optical system condition change instruction unit outputs the signal to change the optical system condition;

a determining unit configured to determine whether a first of the plurality of consecutive images is sensed; and

a control unit configured to complete associating operation of the plurality of consecutive images which have been sensed before reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction unit when the user selects to finish the image sensing operation based on a result from said selecting unit, and configured to finish associating operation of images sensed after a first one of the plurality of consecutive images to be stored in said storage unit in association with each other is sensed and stored based on a result from said determining unit, and configured to stop changing of the optical system condition when the user selects to continue the image sensing operation based on the result from said selecting unit.

18 (ORIGINAL): The apparatus according to claim 17, wherein the optical system condition is a focal length of said image sensing lens.

19 (ORIGINAL): The apparatus according to claim 17, wherein associating the plurality of images is obtaining a panoramic image by synthesizing the plurality of images.

20 (ORIGINAL): The apparatus according to claim 17, wherein the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a

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high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift.

21 (PREVIOUSLY PRESENTED): The apparatus according to claim 17, wherein said control means starts image sensing of a plurality of new images to be stored in association with each other after finishing of the associating operation of images.

22-25 (CANCELLED):

26 (PREVIOUSLY PRESENTED): The apparatus according to claim 17, further comprising initial value control means for controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started.

27-30 (CANCELLED):

31 (CURRENTLY AMENDED): A control method for an image processing apparatus which comprises an image sensing unit having an image sensing lens which can change an optical system condition while a user takes a plurality of consecutive images using said image sensing ~~means~~ unit, a storage unit configured to store the plurality of consecutive images sensed by said image sensing ~~means~~ unit by associating them with each other, an optical system condition change instruction unit configured to output an instruction for changing the optical system condition of said image sensing lens upon detecting an indication that the optical sytem is operated by a user, a selecting unit configured to make the user to select whether or not to continue an image sensing operation while the user takes the plurality of consecutive images

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when said optical system condition change instruction unit outputs the signal to change the optical system condition, and a determining unit configured to determine whether a first of the plurality of consecutive images is sensed, comprising the step of:

completing associating operation of the plurality of images which have been sensed before reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction unit when the user selects to finish the image sensing operation based on a result from said selecting unit, and finishing associating operation of images sensed after a first one of the plurality of images to be stored in said storage unit in association with each other is sensed and stored based on a result from said determining unit, and controlling to stop changing of the optical system condition when the user selects to continue the image sensing operation based on the result from said selecting unit.

32 (ORIGINAL): The method according to claim 31, wherein the optical system condition is a focal length of said image sensing lens.

33 (ORIGINAL): The method according to claim 31, wherein associating the plurality of images is obtaining a panoramic image by synthesizing the plurality of images.

34 (ORIGINAL): The method according to claim 31, wherein the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift.

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35 (PREVIOUSLY PRESENTED): The method according to claim 31, further comprising the step of starting image sensing of a plurality of new images to be stored in association with each other after finishing of the associating operation of images.

36-39 (CANCELLED):

40 (PREVIOUSLY PRESENTED): The method according to claim 31, further comprising the step of setting the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started.

41-44 (CANCELLED):

45 (CURRENTLY AMENDED): A storage medium that stores a control program for controlling an image processing apparatus which comprises an image sensing unit having an image sensing lens which can change an optical system condition while a user takes a plurality of consecutive images using said image sensing ~~means~~ unit, a storage unit configured to store the plurality of consecutive images sensed by said image sensing ~~means~~ unit by associating them with each other, an optical system condition change instruction unit configured to output an instruction for changing the optical system condition of said image sensing lens upon detecting an indication that the optical system is operated by a user, a selecting unit configured to make the user to select whether or not to continue an image sensing operation while the user takes the plurality of consecutive images when said optical system condition change instruction unit outputs the signal to change the optical system condition, and a determining unit configured to

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determine whether a first of the plurality of consecutive images is sensed, said control program comprising a code of the step of:

completing associating operation of the plurality of images which have been sensed before reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction unit when the user selects to finish the image sensing operation based on a result from said selecting unit, and finishing associating operation of images sensed after a first one of the plurality of images to be stored in said storage unit in association with each other is sensed and stored based on a result from said determining unit, and controlling to stop changing of the optical system condition when the user selects to continue the image sensing operation baased based on the result from said selecting unit.

46 (ORIGINAL): The medium according to claim 45, wherein the optical system condition is a focal length of said image sensing lens.

47 (ORIGINAL): The medium according to claim 45, wherein associating the plurality of images is obtaining a panoramic image by synthesizing the plurality of images.

48 (ORIGINAL): The medium according to claim 45, wherein the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift.

49 (PREVIOUSLY PRESENTED): The storage medium according to claim 45, wherein said

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control program further comprising the step of starting image sensing of a plurality of new images to be stored in association with each other after finishing of the associating operation of images.

50-53 (CANCELLED):

54 (PREVIOUSLY PRESENTED): The storage medium according to claim 45, wherein said control program further comprising the step of setting the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started.

55-58 (CANCELLED):

59 (PREVIOUSLY PRESENTED): The apparatus according to claim 17, wherein the change in optical system condition includes free attachment/detachment of said lens unit.

60 (WITHDRAWN): An image processing apparatus having a function of storing a plurality of sensed still images and/or moving images in storage means, comprising:

a detachable lens unit having nonvolatile storage means;

image sensing means for sensing an object image formed by said lens unit;

instruction means for instructing attachment/detachment of said lens unit; and

control means for controlling to permit detachment of said lens unit after information pertaining to an operation state of said lens unit and/or user information are/is stored in said nonvolatile storage means, when said instruction means outputs an instruction for detaching said lens unit, and for reading out information pertaining to a use state of said lens unit and/or the

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user information stored in said nonvolatile storage means and re-setting an operation state of said image processing apparatus in accordance with the readout information, when said lens unit is attached again.

61 (WITHDRAWN): The apparatus according to claim 60, wherein the operation state is an image sensing mode of said image processing apparatus.

62 (WITHDRAWN): The apparatus according to claim 60, wherein the operation state is a focal length setting value of a lens unit, a focal length of which can be changed.

63 (WITHDRAWN): A control method for an image processing apparatus which comprises a detachable lens unit having nonvolatile storage means, image sensing means for sensing an object image formed by said lens unit, and instruction means for instructing attachment/detachment of said lens unit, comprising the step of:

 permitting detachment of said lens unit after information pertaining to an operation state of said lens unit and/or user information are/is stored in said nonvolatile storage means, when said instruction means outputs an instruction for detaching said lens unit, and reading out information pertaining to a use state of said lens unit and/or the user information stored in said nonvolatile storage means and re-setting an operation state of said image processing apparatus in accordance with the readout information, when said lens unit is attached again.

64 (WITHDRAWN): The method according to claim 63, wherein the operation state is an image sensing mode of said image processing apparatus.

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65 (WITHDRAWN): The method according to claim 63, wherein the operation state is a focal length setting value of a lens unit, a focal length of which can be changed.

66 (WITHDRAWN): A storage medium that stores a control program for controlling an image processing apparatus which comprises a detachable lens unit having nonvolatile storage means, image sensing means for sensing an object image formed by said lens unit, and instruction means for instructing attachment/detachment of said lens unit, said control program comprising a code of the step of:

 permitting detachment of said lens unit after information pertaining to an operation state of said lens unit and/or user information are/is stored in said nonvolatile storage means, when said instruction means outputs an instruction for detaching said lens unit, and reading out information pertaining to a use state of said lens unit and/or the user information stored in said nonvolatile storage means and re-setting an operation state of said image processing apparatus in accordance with the readout information, when said lens unit is attached again.

67 (WITHDRAWN): The medium according to claim 66, wherein the operation state is an image sensing mode of said image processing apparatus.

68 (WITHDRAWN): The medium according to claim 66, wherein the operation state is a focal length setting value of a lens unit, a focal length of which can be changed.

69 (PREVIOUSLY PRESENTED): The apparatus according to claim 17, further comprising alerting means for alerting upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction

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means.

70 (PREVIOUSLY PRESENTED): The method according to claim 31, further comprising the step of generating an alert upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means.

71 (PREVIOUSLY PRESENTED): The storage medium according to claim 45, wherein said control program further comprising the step of generating an alert upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means.